

# Feedback Analysis System Overview

## 1. What technology is being used for NLP?

A - Various python modules and AWS NLP services: spacy, sci-kit learn, spacy, gensim, AWS comprehend, AWS jumpstart (tensorflow), fasttext

## 2. How are the FAS results tested for errors in analysis? What are the results?

A – The AI/ML NLP models are validated using Model Validation techniques and QA check. The results of the FAS models aide the CMS analysts in review and do not replace the manual process to detect result drift, at > 80% accuracies

## 3. Any idea what the accuracy of manual efforts are? If greater, have there been legal challenges to the use of FAS for this purpose?

A – Every comment is available for review by the CMS agency analysts, FAS simply aides in the organization and categorization of the comments making the review process more efficient.

## 4. How do the legal requirements for comment processing allow for use of FAS?

A - There are no conflicts between the legal requirements of manual comments processing and FAS. Every comment is available for review by the CMS agency analysts, FAS simply aides in the organization and categorization of the comments making the review process more efficient.

## 5. What do you think of using NLP to review the actual proposals?

A - Although NLP can be applied to processing unstructured text such as the proposal documents, FAS's focus has primarily been on reviewing comments to ensure stakeholder feedback is fully considered.

## 6. What happens with the Other/Unmapped Comments? Are they reviewed for relevancy?

A - All comments are available in full for CMS Analysts to review for relevancy should a question arise.

## 7. Are agreements reviewed for context? It could be that they were referring to what they wrote in a previous sentence, and it may not necessarily be a true agreement.

A - All comments and the machine learning model outcomes are available for review within the FAS UI by the CMS analysts/agency reviewer. FAS highlights the sentiment outcomes in the context of the comment text to give the reviewer an opportunity to validate context.

## 8. What was used to create the web app / UI?

A - The web app/UI was created using the React Framework.

## 9. How many of these comments are actually reviewed for accuracy ?

A – 100% of the comments are made available to be read by CMS Analysts to ensure the accuracy of the NLP model .

## 10. My questions was with regard to the summary view are they able to view the comments for a particular category?

A - In our current version, the ability to filter by category is available on the Comment List screen and not in the summary view/dashboard

## 11. Who is providing the feedback to optimize the model? Who is reviewing the results? The CMS personnel responsible for comment assessment?

A – All model results are presented via the FAS user interface for review by the CMS Analyst. The FAS application also provides a feature to enlist feedback from CMS FAS users and factored into future model releases

## 12. Regarding flagged comments - what is the outcome of them being flagged? Who actually reviews them?

A – Flagged comments enable an individual CMS Analyst easy retrieval, review and download.

## 13. What happens with any comments that are flagged?

A – They are available for easy retrieval, review and download by the FAS user that flagged the comments

## 14. How does the system ensure that the full explanation is taken into account when doing the analysis?

A – Additional context is needed to understand this question.

## 15. How do you derive manual error rates based on estimated manual FTEs?

A – The Manual Reviewers are managed by the Program associated with the Comments reviewed. FAS is an enabling tool.

## 16. So CMS analysts reviewing all comments manually inaccurately assess the nature of the comment between 10 and 30 percent of the time relative to FAS at 20 percent or better? How was that determined?

A – FAS is a supplemental tool for the review process, as such no quantitative comparisons are being made between manual comment review processes and using FAS as an aide.